USSR

UDC 543.13.541.183

MELESHKO, V. P., ZOLOTAREVA, R. I., PESTUSHKO, N. N., and ISAYEV, N. I.,
Voronezh Technological Institute

"The Question of the Sources of Regenerating Ions During Electrochemical Regeneration of Ion Exchange Resins"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1188-1190

Abstract: It has been shown that the ion exchange resins may be regenerated with hydrogen or hydroxyl ions forming on the interphases: ion exchange membrane -- solution, or ion exchange resin -- solution in the process of their polarization with current densities exceeding the treshold level. Maximal effect is achieved when the regeneration is a result of a combined action of two sources of regenerating ions: the electrode reaction and the process on the bipolar border or on the border between the membrane and solution. The degree of the regeneration of ion exchange resin alters down the electric field line of forces, increasing from the anode to cathode for the anion exchange resin and decreasing for the cation exchange resin regardless of the source of regenerating ions.

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USSR

UDC 666.192.462

ZOLOTAREVA, R. S., Candidate of Technical Sciences, and RUSLOV, V. N., KOSTYRYA, V. N., and MOSKALENKO, A. M., Engineers (NIIavtosteklo /expansion unavailable/)

"Efficient Utilization of Graphite in the Production of Quartz Tubes"

Moscow, Steklo i Keramika, No 12, Dec 73, p 33

Abstract: Quartz for the production of quartz tubes at the "Avtosteklo" plant is melted in graphitized crucibles 172 x 350 mm, made from a blank 200 mm in diameter and 420 mm long. The crucible is made from the blank by means of a goring cutter on a lathe, with utilization of 14% of the material of the blank. An efficient method for cut-out of the blank by a special milling cutter is proposed by the authors, which would result in an increase of the coefficient of utilization of the material by a factor of 2.2. This would save the plant 19,000 rubles per year. 3 figures.

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Acc. Nr.: AP0046770 Ref. Code: UR0115

USSR UDC 681.2.002.3

MINAKOV, A. G., ZOLOTAREVA, R. S., KIN'KO, N. I., ORLOVA, YE. S., LITVINOV, A. V., and GURILEVSKIY, A. A.

"Introduction of Pyroceramics in the Instrument-Making Industry"

Moscow, Izmeritel'naya Tekhnika (Measurement Technology), No 1, 1970, p 107

Translation: At the Scientific Research Institute of Auto Glass, transparent and semi-transrarent pyroceramics were synthesized, replacing the jewels used in the instrument-making industry. Information was presented on the course of tests and adoption of the pyroceramics. (1 table)

1/1 1 P.N.

Reel/Frame
19790074

USSR

UDC 621.315.592.3

RUDNEV, V. V., MASLENNIKOV, P. N., NAZAROV, V. A., ZOLOTAREVA, R. V., ANTROPOV, V. D.

"Ion Implantation -- New Method of Alloying Semiconductors"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, pp 148-149 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G483)

Translation: Results are presented of studying ion alloying of semiconductors on the basis of materials published in Soviet and foreign literature. The basic areas of application of ion beams in the technological process for manufacturing semiconductor instruments are investigated. The effect of penetration of the ions into amorphous and crystalline substrates is described in detail. The effect of the energy of the incident ions, the atomic mass of the substrate, and its crystallinity and orientation on the magnitude of the ion path in the solid state is investigated. A procedure for calculating the mean ion path is presented.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CHARACTERISTICS OF VARIOUS FORMS OF BENIGN HYPERBILIRUBINEMIA CLINICAL, HISTOLOGICAL AND ELECTRON MICROSCOPIC STUDY -U-

AUTHOR-(03)-PODYMOVA, S.D., ZOLOTAREVSKIY, V.B., ROMANOV, V.S.

COUNTRY OF INFO--USSR

SOURCE--SOV MED 33(1): 26-31 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, BIOPSY, BILIRUBIN, BIOLOGIC PIGMENT, HISTOCHEMISTRY, ENZYME ACTIVITY, ELECTRON MICROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0174 STEP NO--UR/0399/70/033/001/0026/0031

CIRC ACCESSION NO--AP0120874

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0120874
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SALIENT CLINICAL AND MORPHOLOGICAL FEATURES OF THE LIVER PUNCTURES IN 42 PAITENTS WITH BENIGN HYPERBILIRUBINEMIA, INCLUDING 24 WITH THE GILBERT MEULENGRACHT VARIETY, 13 WITH POSTHEPATIC, 2 WITH DUBIN JOHNSON AND 3 WITH ROTOR FORMS, ARE PRESENTED. IN ALL 3 GROUPS OF HYPERBILIRUBINEMIA THE PIGMENT WAS FOUND TO DEMONSTRATE SIMILAR HISTOCHEMICAL PROPERTIES CHARACTERISTICS OF CHROMOLIPOID LIPOFUSCINS-PHOSPHOLIPIDS, THE PIGMENT DISPLAYED BRIGHT BROWNISH RED PRIMARY LUMINISCENCE. THE ACTIVITY OF OXIDATIVE ENZYMES IN THE CENTER OF LUBULES, WHERE DEPOSITION OF THE PIGMENT WAS AT ITS HIGHEST, DIMINISHED. REPEATED BIOPSIES HELPED TRACE THE FORMATION OF THE PIGMENT FROM FATTY DROPS. DILATATION AND PROLIFERATION OF BILIARY CAPILLARIES, BROUGHT IN EVIDENCE THROUGH ELECTRON MICROSCOPY, MAY BE OF IMPORTANCE FOR THE UNDERSTANDING OF THE MORPHOLOGICAL BASIS UNDERLYING THE DISRUPTION OF THE BILIFICATION MECHANISMS. FACILITY: I. M. SECHENOV 1ST MOSCOW MED. INST., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0044696 Ref. Code: UR 0531

PRIMARY SOURCE: Khirurgiya, 1970, Nr 1, pp 28-31

CHANGES OF THE BLOOD COAGULATION SYSTEM IN PATIENTS WITH OBLITERATING ENDARTERITIS OF THE LOWER EXTREMITIES

Kokhan, Ye. P.; Zolotarevskiy, V. Ya.; Khrushcheva, Ye. A

Coagulographic indices were investigated in patients with obliterating endarteritis at different stages and phases of the disease. Manifestations of hypercoagulation were revealed in all stages of the disease, however they were more marked in the pregangrenous and gangrenous stages and in the phase of exacerbation. Coagulographic tests to an adequate measure reflect the state of the blood coagulation and anticoagulation system and are convenient in the practical work.

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PT 02

REEL/FRAME

19771430

USSR

UDC: 539.4:669.71

RYBAL'CHENKO, M. K., ZOLOTAREVSKIY, YU. S., KABICHEV, B. I., USTINOV, L. M., IVANOV, V. V., and ZHAMNOVA, V. I., Moscow

"Some Mechanical Properties of a Fibrous Composite Material Based on an Aluminum Alloy"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 73, pp 117-122

Abstract: The authors produce a series of fibrous composites made from aluminum alloy and wire made from the EP322 grade steel. This was done by the hot rolling method using the scheme for bonding packs. Reinforcing the aluminum alloy with 12.4 volumetric percent wire increases the specific strength of the material from 15.2 to 19.7 km. The best properties are ensured by a bonding scheme which incorporates the simple multi-layer (two-layer) winding of the fibers onto the sheets of the matrix.

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USSR UDC 616.985.5-053.3-097.5

DREYZIN, R. S., VOD'YA, R. A., and ZOLOTARSKAYA, E. Ye., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, and Tallin Scientific Research Institute of Epidemiology, Microbiology, and Hygiene

"Long-Term Follow-Up of the Level of Antibodies to Adenoviruses in Institutionalized Children"

Moscow, Voprosy Virusologii, No 5, 1971, pp 590-596

Abstract: The formation of humoral immunity to six serotypes of adenoviruses (types 3 and 7 and latent types 1, 2, 5, and 6) was studied in 90 institutionalized Estonian children ranging in age from 2 months to 3 years. By age 3 the sera of all the children contained antihemagglutinins to types 3 and 7, and only 38 to 63% contained neutralizing antibodies to each of the latent types, despite the fact that the latter circulated in the group. There were numerous cases of natural reinfection with the same type of virus. The level of immunity markedly increased after reinfection as manifested by a sharp rise in antibody levels, persistence of high titers, and slow lowering of the levels. The results of the study suggest that immunity to adenovirus infection is maintained by infection with the commonest serotypes. Primary infections

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DREYZIN, R. S., et al., Voprosy Virusologii, No 5, 1971, pp 590-596

arose in the absence of antibodies in the serum, while reinfection occurred both in the absence of antibodies and in the presence of neutralizing antibodies to the latent types in titers of 1:10 and of antihemagllutinins to types 3 and 7 in titers ranging from 1:10 to 1:80. The complement-fixing antibodies were the first to disappear, then the antihemagglutinins, and last of all the neutralizing antibodies.

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UDC 543.42

LISIYENKO, D. G., MUZGIN, V. N., and ZOLOTAVIN, V. L.

"Spectral Analysis of the Products of Processing Titanium Magnetite Ores by the Aerosol Spark Method"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 388-395

Abstract: The authors describe a method of spectral analysis of finely dispersed powder samples of a concentrate and agglomerate by blasting their water suspensions into a high-volt spark discharge. They found that in the case of determining large concentrations of iron (50-65%) a percision of the analysis that satisfies the technological requirements can be obtained by the use of the method of conventional integral graphs. A graduated graph was constructed at the coordinates $[\Delta S_{Fe-Ca}+0.59\ \Delta S_{Fe-Ti}]$-log C_{Fe}. They indicated theoretically and proved experimentally that the increase of the slope of the graduated graphs is explained by the existence of certain regularities in the modification of the composition of the samples rather than by the developing effect of "third elements." In the case of determining vanadium, calcium, silicon, and titanium the authors suggest using components of the sample as the elements of internal comparison, thus allowing the analytical errors in the uncontrollable variations in degree of dispersion of the samples to be

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USSR

LISIYENKO, D. G., et al., Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 388-395

substantially decreased. The necessary condition for applicability of the element of comparison with a variable concentration in the samples is the proximity of the concentration sensitivity of its lines to the lines of the elements to be analyzed. They show that this can be done by modifying the capacitance of the discharge circuit of the generator. The optimal analytical conditions are reached when C = 0.005 μfarad. The graduated graphs were constructed at the coordinates ΔS-log $\frac{C_{an}}{C_{av}}$. The mean relative deviations of the results of the spectral analysis from the data of chemical analysis are 0.45% for iron, 2.7% for calcium, 3.5% for silicon, 3.2% for vanadium, and 4.0% for titanium. The article contains 1 illustration, 4 tables, and 7 bibliographic entries.

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USSR UDC 628.346

ZOLOTAVIN, V. L., KONSTANTINOVICH, A. A., SANATINA, V. N., PUSHKAREV, V. V., and PETROV, V. S.

"Deactivation of Radioactive Sewage by the Method of Two-stage Coagulation of Iron Hydroxide"

Leningrad, Radiokhimiya, Vol 13, No 1, 1971, pp 164-166

Abstract: Comparison of the two-stage coagulation process with the single stage method showed that with identical consumption of iron sulfate the deactivation of sewage is increased 12-20 fold in respect to the α-activity, and 2-5 fold in respect to the β-activity when the two-stage method was used.

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6022
CSO: 1841-W

1/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--PRODUCTS OF THE HYDROLYTIC PRECIPITATION OF V PRIMES POSITIVE CONTAINING SODIUM -U-

AUTHOR-(03)-PLETNEV, R.N., ZOLOTAVIN, V.L., TOLSTOV, L.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 427-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PRECIPITATION, METAL ION, VANADIUM, VANADATE, NITRIC ACID, MOLECULAR STRUCTURE, VANADIUM PENTOXIDE, SOLUTION ACIDITY, IR SPECTRUM, NMR SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0851 STEP NO--UR/0080/70/043/002/0427/0429

CIRC ACCESSION NO--AP0104287

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203820007-7"

2/2 027 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0104267

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDRATED PPTS. OF V PRIME5 POSITIVE OBTAINED BY ACIDIFICATION OF NA METAVANADATE WITH HNO SUB3 UNDER DIFFERENT CONDITIONS WERE EXAMD. 2 YEARS AFTER PREPN., AND FRESH PPTS. SHOW QUITE DIFFERENT PROPERTIES. NMR AT 77DEGREESK AND ROOM TEMP. AND IR SPECTRA WERE STUDIED. STARTING CONCNS. OF V PRIME5 POSITIVE WERE 0.2175, 0.0435, AND 0.0184M AND DEGREE OF ACIDIFICATION (RATION (H PRIME POSITIVE)-(VO SUB3 PRIME NEGATIVE)) WAS CHANGED IN THE REGION 0.7-2.1 FOR EACH CONCN. TWO TYPES OF PPT. WERE FOUND. THE PRIMARY PRODUCT HAS A STRUCTURE SIMILAR TO THAT OF V SUB2 O SUB5 IN WHICH THE EXISTENCE OF VO SUB2 PRIME POSITIVE IS POSSIBLE. THE SECOND TYPE OF PRODUCT, FORMED ONLY AT 0.2175 AND PH 4.25, SHOWS THE SAME STRUCTURE AS HEXAVANADATE. PMR AND IR SPECTRA VALENCE OSCILLATIONS OF OH GROUPS AND DEFORMATION OSCILLATIONS OF H SUB2 O AND OH GROUPS CONFIRM THE COMPN. GIVEN PREVIOUSLY AS NA SUBX (VO SUB2) SUB5 NEGATIVEX.HV SUB10 O SUB28 .NH SUB2 O, WHERE 1 IS SMALLER THAN OR EQUAL TO X IS SMALLER THAN OR EQUAL TO 5.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--PREPARATION OF SLIGHTLY SOLUBLE BINARY DECAVANADATES OF NICKEL AND ALKALI METALS CESIUM, RUBIDIUM, AND POTASSIUM -U-

AUTHOR-(03)-ELFIMOV, V.I., BEZRUKOV, I.YA., ZOLOTAVIN, V.L.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 607-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKALI METAL, NICKEL COMPOUND, VANADATE, CESIUM COMPOUND, RUBIDIUM COMPOUND, POTASSIUM COMPOUND, NITRATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0904 STEP NO--UR/0363/70/006/003/0607/0608

CIRC ACCESSION NO--AP0118073

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0118073
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF DECAVANADATE AND (NI(H SUB2O)SUB6)PRIME2 POSITIVE IN THE PRESENCE OF K PRIME POSITIVE, RB PRIME POSITIVE, AND CS PRIME POSITIVE IN SLIGHTLY ACIDIC SOLNS. WAS STUDIED. FOR H PRIME POSITIVE-VO SUB3 PRIME NEGATIVE RATIOS OF 0.07-0.6 (PH 6.3-2.6), A COMPD. OF CONST. COMPN. FORMS WITH THE FORMULA K SUB2 NI SUB2 V SUB10 O SUB28.15H SUB2 O. ITS COMPN. DOES NOT DEPEND ON THE RATIO OF V, NI, AND K IN THE STARTING SOLNS. FROM LI CONTG. AQ. SOLNS. IT WAS NOT POSSIBLE TO OBTAIN THE DECAVANADATES EVEN AT C SUBLIVO3 EQUALS 0.6 M AND THE STARTING RATIOS OF V-NI EQUALS 0.5-35, LI-V EQUALS 1-7, AND H PRIME POSITIVE-VO SUB3 PRIME NEGATIVE EQUALS 0-0.6. HOWEVER, ADDING ETOH PPTD. NI SUB3 V SUB10O SUB28. 22H SUB2 O, THE COMPN. OF WHICH DOES NOT DEPEND ON THE STARTING V-NI AND LI-NI RATIOS OR ETOH CONCN. DURING THE TITRN. OF A SOLN. OF NORMAL NI DECAVANADATE BY A SOLN. OF CSNO SUB3 SLIGHTLY SOL. COMPD., CS SBU2 NI SUB2 V SUB10 O SUB28.15H SUB2 O, FORMS, WHICH DOES NOT DEPEND ON THE STARTING V-NI AND CS-NI RATIOS. SIMILAR COMPDS. FORM IN CASE OF RB AND K NITRATE SALTS, BUT WITH SLIGHTLY HIGHER SOLY. FACILITY: URAL. POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--INTERACTION OF MANGANESE (II) WITH DECAVANADATE IONS IN THE PRESENCE OF LITHIUM, SODIUM, AND POTASSIUM CATIONS -U-

AUTHOR-(03)-BULYGINA, V.N., BEZRUKOV, I.YA., ZOLOTAVIN, V.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 435-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, TERNARY FLUID SYSTEM, CHLORATE, VANADATE, LITHIUM COMPOUND, SODIUM COMPOUND, POTASSIUM COMPOUND, CRYSTALLIZATION, SOLUTION CONCENTRATION, SOLUTION ACIDITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0773 STEP NO--UR/0078/70/015/002/0435/0438

CIRC ACCESSION NO--AP0104219

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203820007-7"

2/2 016 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104219

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NA SUB6 V SUB10 O SUB28, MN(CLO SUB4) SUB2 H SUB2 O SYSTEM WAS STUDIED BY THE METHOD OF CONTINUOUS CHANGE OF CONCNS. WHEN IONIC STRENGTH OF THE SYSTEM WAS ADJUSTED WITH NACLO SUB4 TO 1.0 AND THE H POSITIVE-V CONCN. RATIO WAS SIMILAR TO 0.4, LARGE SHINY ORANGE CRYSTALS OF NA SUB4 MNV SUB10 O SUB28 .NH SUB2 O (I) SEPD. THE SYSTEM I-H SUB2 O IS VERY UNSTABLE AND WHEN KEPT FOR 2-3 DAYS AT PH 3.5-5.5 I DISPROPORTIONATED. BOTH K SUB4 MNV SUB10 O SUB28 .NH SUB2 O AND K SUB2 MN SUB2 V SUB10 O SUB28 .NH SUB2 O WHEN THE ANALOGOUS SYSTEM OF K SUB6 V SUB10 O SUB28 WAS KEPT AT A K-MN CONCN. RATIO OF 10-19 AND AT PH 3. AT PH 5.5 AND A HPOSITIVE-V CONCN. RATIO IS GREATER THAN 0.4, THE ANALOGOUS LI SUB6 V SUB10 O SUB28 SYSTEM FORMED ONLY 1 COMPD. HAVING A V-MN CONCN. RATIO OF 3.33.

UNCLASSIFIED

USSR

UDC: 531.383

ZOLOTENKO, G.F., and ONISHCHENKO, S.M.

"On Theory of Gyrohorizoncompass With Azimuth Correction of Sensing Element Shell"

Kiev, Prikladnaya Mekhanika, Vol 7, No 12, 1971, pp 65-70

Abstract: The equilibrium of the system taking into account the disturbing moments is given by equations (2.1), which can be put in the form (2.10).

Assuming, that the disturbing moment about the precession axis is proportional to the angle that the kinetic momentum of the gyroscope makes with the vertical axis, (4.7) is the differential equation of motion. The solutions of this equation is given by (4.9), (4.11) and (4.12). In these equations the free oscillations are damped. Therefore the azimuth correction controlled by the angle of the kinetic momentum with the vertical axis results in higher compass precision.

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1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--ANTIBODIES AND TRACE ELEMENTS OF THE BLOOD AND IMMUNOGLOBULINS IN CHRONIC DISEASES OF THE LIVER -U-
AUTHOR-(05)-BONDAR, Z.A., ZOLOTNITSKAYA, R.P., UZYANOVA, V.L., BELOKRINITSKIY, D.B., KIRILCHENKO, A.M.
COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 18-23

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INTERNAL ORGAN DISEASE, LIVER, BLOOD CHEMISTRY, TRACE ELEMENT, ANTIBODY, GLOBULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0815 STEP NO--UR/0504/70/042/003/0018/0023

CIRC ACCESSION NO--AP0102777
UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102777

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CONDUCT IMMUNOLOGICAL INVESTIGATIONS IN 110 PATIENTS WITH VARIOUS CHRONIC DISEASES OF THE LIVER COMPARING THEM WITH CLINICAL AND HEMATOLOGICAL DATA. IT WAS FOUND THAT IN 47.2PERCENT OF THE PATIENTS ANTIBODIES TO TRACE ELEMENTS WERE DETERMINED, MOSTLY ERYTHROCYTIC AND THROMBOCYTIC. THERE WAS FOUND A CERTAIN CORRELATION BETWEEN POSITIVE REACTIONS TO ANTIBODIES AND CYTOPENIA, DEGREE OF SPLENOMEGALY AND CHANGES IN THE AMOUNT OF IMMUNOGLOBULINS. THE GREATEST IMMUNOLOGICAL CHANGES WERE OBSERVED IN PATIENTS WITH CIRRHOSIS OF THE LIVER. THE SPLEEN PLAYED A GREAT ROLE IN THE IMMUNE CONFLICT. A SPECIAL IMPORTANCE SHOULD BE ATTACHED TO THE IMMUNE MECHANISM IN THE COMPLICATED GENESIS OF HYPERSPLENISM IN CHRONIC DISEASES OF THE LIVER, HOWEVER THE ASSESSMENT OF IMMUNOLOGICAL DATA SHOULD BE DONE WITH CAUTION IN VIEW OF NONSPECIFIC POSITIVE REACTIONS.

UNCLASSIFIED

USSR

UDC 539.3

KOPERNIK, G. R., ZOLOTNITSKIY, Yu. S.

"Certain Problems in the Application of the Modified Vlasov-Kantorovich Method to a Study of Hollow Panels"

V sb. Raschet prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 32-37 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V150)

Translation: The application of the Bubnov-Vlasov variational method for studying deformations and forces in hollow shells under the action of static loads is discussed. If the approximating functions by means of which the solutions sought is represented do not satisfy the static boundary conditions, it is proposed that the appropriate boundary conditions be satisfied not integrally at the boundaries to the panel but in individual points of the contour. It is shown that one can obtain a more exact solution of the problem in this case if the points of collocation on the contour are selected correctly. In selecting the appropriate points of collocation, it is proposed

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KOPERNIK, G. R., ZOLOTNITSKIY, Yu. S., Raschet prostranstv. sistem v stroit. mekh., Saratov, Saratov University, 1972, pp 32-37

that the least square criterion for the deviation of the unfulfilled conditions on the contour from zero (or a given value) be used. In studying the deformations and forces in a square cylindrical hollow panel under the action of a uniformly distributed normal load and under boundary conditions for a movable hinged support, it was found that the best point of collocation in solving the problem in the first approximation is a point with the coordinates $x = y = 0.4164a$, where a is the size of sides with the coordinate origin in the center of the panel. The solution obtained is compared with the solution of the same problem by the Bubnov method when all boundary conditions are satisfied exactly. E. I. Sokolov.

USSR

UDC 539.216.2:538.221

PALATNIK, L. S., LUKASHENKO, L. I., ZOLOTNITSKIY, YU. V., and MOROZOVA, N. I., Kharkov Polytechnic Institute imeni V.I. Lenin

"Domain Structure of Permalloy Films With Perpendicular Anisotropy"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 941-946

Abstract: Using the powder pattern on two opposite sides of permalloy films, the volumetric distribution model of domain boundaries was derived, according to which the domains form plane-parallel layers at some distance from the permalloy film surface (thickness of films was 100 μm). Domains of the reverse magnetization in a shape of cones were visible inside the principal domains, immediately below the film surface. They were (0.15-0.20) h high, with a base diameter equal to approximately one half of the width of a principal domain. Rows of the conical domains at two opposite sides of a film were shifted by one half of the period with respect to each other. This model agrees in principle with the one suggested before by the authors. However, domains of closure were not detected in the film layer next to the surface, and no domains were found with a gradually decreasing diameter. Very often wedges were visible within the cross-section of a film. Walls of the principal domains deviated from normal in the next-to-surface layer at a depth of the

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203820007-7"

USSR

PALATNIK, L. S., et al., Fizika Metallov i Metallovedeniye, Vol 35, No 5, 1973, pp 941-946

conical domains. These walls were not revealed on the film surface by the powder pattern method and their distribution was not established. The perpendicular anisotropy constant of Permalloy films was considerably lower than that of cobalt and other uniaxial single crystals.

2/2

Turbine and Engine Design

USSR

UDC: 532.546:629.7.948.7

ZOLOTOGOROV, M. S., Central Scientific Research Design and Planning Boiler and Turbine Institute imeni I. I. Polzunov, Leningrad

"Investigation of the Effectiveness of Film Cooling as Applied Under Actual Conditions in Some Engines"

Minsk, Inzhenerno-Fizicheskiy Zhurnal, Vol 22, No 1, Jan 72, pp 46-49

Abstract: The author attempts to develop a method for calculating film cooling of certain elements in the flow section of a gas turbine. The method is based on utilizing a film cooling efficiency curve plotted for ideal conditions, and a system of corrections which account for the difference between actual and idealized conditions. The paper gives the results of an experimental study of the effectiveness of film cooling under idealized conditions over a range of Reynolds numbers calculated from main flow parameters and a slit height which are typical of the flow sections of gas turbines. Data are presented on the effect which acceleration of the main flow and coolant has on the effectiveness of film cooling. Two figures, bibliography of four titles.

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1/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--FORMULAE FOR CALCULATING THE MECHANICAL PROPERTIES OF ALUMINIUM COPPER ALLOY CASTINGS FROM THE STRUCTURE -U-

AUTHOR-(02)-ZOLOTOREVSKY, V.S., TELESHOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V. U. Z., TSVETNAYA MET., 1970, (1), 121-126

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MECHANICAL PROPERTY, ALUMINUM ALLOY, COPPER ALLOY, METAL CASTING, BIBLIOGRAPHY, METAL TEST, INTERMETALLIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0532 STEP NO--UR/0149/70/000/001/0121/0126

CIRC ACCESSION NO--AP0124227

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124227

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF CALCULATING THE MECHANICAL PROPERTIES OF AL CU ALLOY CASTINGS BY ANALYSING THEIR STRUCTURAL CHARACTERISTICS (DENDRITE CELL SIZE, PROPORTION OF INTERMETALLIC INCLUSIONS SUCH AS CUAL SUB2, ETC.) IS DISCUSSED ON THE BASIS OF AN EXPERIMENTAL CORRELATION OF THESE PROPERTIES, AND EMPIRICAL FORMULAE ARE DERIVED FOR THIS PURPOSE. THE FORMULAE ARE ADEQUATE FOR PRACTICAL PURPOSES AND SAVE A GREAT DEAL OF TIME IN THE MECHANICAL TESTING OF INDIVIDUAL CASTINGS.

UNCLASSIFIED

ZOLOTOREVSKIY, V. S.

JPRS 53372
6 March 1971
UDC 621.728

STUDY OF THE STRUCTURE AND TEMPERATURE OF THE BRITTLE-DUCTILE TRANSITION OF SOME ALLOYS OF THE Cr-Ti-V-B SYSTEM

[Article by V. S. Zolotorevskiy, S. V. Indenbaum, Kh. V. Karpanov, T. P. Khazanova, Moscow Steel and Alloys Institute; Department of Physical Metallurgy of Nonferrous, Rare and Radioactive Metals; Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, Russian, No 5, 1971, submitted 6 March 1971, pp 133-135]

One of the prospective groups of heat-resistant materials developed at this time is dispersion-hardened low-alloy chrome alloys [1-3]. Along with good high-temperature properties, these alloys must have plasticity at close to room temperatures. This depends on the content of alloying elements and the structure of the alloy.

In this paper the goal was to study the effect of the titanium concentration on the structure and temperature of the brittle-ductile transition of hot-extruded bars of alloys of the Cr-Ti-V-B system in the initial and heat-treated states. The titanium concentration in alloys varied from 0.25 to 1.5 percent, and the vanadium and boron content were constant and amounted to 1.5 and 0.05 percent, respectively.

Samples 10 x 10 x 15 mm cut from bars obtained by hot extruding of ingots were used for the structural studies. The samples were heated in the VVV-4 furnace in an argon atmosphere for 5, 15, 25 and 50 hours at 1,100, 1,200 and 1,400 degrees. After completion of isothermal holding the samples were cooled with the furnace. The structure was studied by means of light and electron (UEMV-100V) microscopes. The metallographic microsections and thin foils were prepared in an electrolyte with the following composition: 86 ml of concentrated H_3PO_4, 51 ml of concentrated H_2SO_4 and 100 g of CrO_3. The electron microscope study was performed on single-stage carbon replicas with extracted particles and on self-supporting foils prepared by the procedure of [4]. The phase analysis by means of calculating the electronograms taken from the particles extracted in the replica was performed by the standard procedure of [5]. In addition, a phase x-ray microgrographic analysis was performed with respect to the debyegrams of the previously electrolytically deposited second phase powder. The transition temperature from the brittle state to the plastic

USSR

UDC 669.71'5.018.9

NOVIKOV, I. I., ZOLOTOREVSKIY, V. S., LEVIN, L. I., DRITS, A. M.

"Effect of Manganese, Zirconium, and Chromium Additives on the Structure of Al-4% Zn-2% Mg Alloy Ingots,"

V sb. Struktura i svoystva legk. splavov (Structure and Properties of Light Alloys -- collection of works), Moscow, Nauka Press, 1971, pp 112-117 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G194)

Translation: Light and transmission electron microscopes were used to study the structure of continuous casting ingots 92 mm in diameter from Al-4% Zn-2% Mg alloy with additives of 0.35% Mn, 0.15% Cr, 10.15% Zr in the cast and homogenized states. At a homogenization temperature of 450-550° decomposition of the supersaturated solid solution of Mn in Al takes place primarily in the interaxial spaces of the dendrite, and the solid solution of Zr in Al decomposes at these temperatures with the formation of coherent inclusions of the metastable phase. During slow cooling from the homogenization temperature, decomposition of the supersaturated solid solution of Zn and Mg in Al takes place the uniformity of which depends to a significant degree on the Fe and Si content in the alloy. 3 illustrations, 1 table, and bibliographic entries. 1/1

Alluminum and Its Alloys

USSR

UDC 669.715

ISTOMIN-KASTROVSKIY, V.V., NOVIKOV, I.I., and ZOLOTOREVSKIY, V.S., All-Union Institute of Light Alloys; Moscow Institute of Steel and Alloys

"Substructure of Cast Alloys on an Aluminum-Magnesium Base"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 32, No 2, pp 442-445

Abstract: Cast aluminum alloys with 6.5 and 10% Mg produced from pure Al (99.99%) and pure Mg (99.92%) and from industrial alloys AMr6 (6% Mg, 0.7% Mn) and Al27-1 (10.5% Mg and 0.1% Be, Ti, and Zr) were experimentally investigated by the method of diffractional electron-microscopy. It was found that in the substructure of alloys on the Al - Mg base each dendritic cell represents a combination of subgrains. In proportion to the withdrawal from dendritic cell boundaries, the subgrain sizes increase and the dislocation density inside the subgrains has a tendency to decrease. The observed substructural characteristics of cast Al - Mg alloys are interpreted. Two illustr., five biblio. refs.

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Aluminum and Its Alloys

USSR

UDC 669.715

LEVIN, L. I., ZOLOTOREVSKIY, V. S., AND ZAKHAROV, V. V., All-Union Institute of Light Alloys

"Effect of Production Conditions on the Structure of Ingots and Semifinished Pressure Molded Products Made of Al-Zn-Mg Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 123-127

Abstract: Alloys of the following chemical composition (%) were studied: 4.5 Zn, 2.0 Mg, 0.43 Mn, 0.18 Zr, 0.1 Cr, 0.15 Fe, 0.06 Si; and 4.0 Zn, 1.6 Mg, 0.38 Mn, 0.15 Zr, 0.6 Cu, 0.12 Si, 0.13 Fe. The structure of ingots and semifinished products was studied with optical and electron microscopes, and the mechanical properties of the semifinished products, immediately after hardening, and after natural and artificial aging were examined. Mechanical properties of homogenized (at 450° C for 24 hours) ingots did not depend on the temperature (750-900° C) and rate (25-150 mm/min.) of casting. Increase in the ingot diameter from 92 to 370 mm (ultimate) decreased relative elongation by 8% (from 18 to 10%), while the mechanical properties remained unchanged. The macro- and micro-structure of the ingots showed no dependence

USSR

LEVIN, L. I., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 123-127

on the temperature and rate of casting. The ingots grains increased 2-3 times and dendrite cells by 3-4 times when the ingot diameter was increased from 92 to 370 mm. Nonhomogenized ingots contained dense dislocations, without any secondary intermetallides. Some of the ingots 370 mm in diameter contained Zn-Mg phases when the cooling temperature was below that of the solidus. Homogenized ingots contained secondary intermetallides of manganese and zirconium-containing phases. No relation was established between size, quantity, and distribution of intermetallide particles and the temperature and rate of casting, as well as the ingot diameter. Decomposition of the solid solution of Zn and Mg in aluminum was completely suppressed when ingots were cooled in water and many large particles (up to 5 μm) of the Zn-Mg phase were formed during the stepwise ingot cooling (2 hours exposure at 280°C). Heating of ingots to 380-400°C before pressure molding completely eliminated large Zn-Mg particles, which dissolved within 10 min at 400°C. Pressure molding at 350°C led to only a partial disappearance of Zn-Mg particles. All semi-finished products pressed at a rate of 6-8 m/min at 350-400°C had a completely nonrecrystallized structure after hardening, but those produced at 350oC with

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USSR

LEVIN, L. I., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 1, 1973, pp 123-127

a rate of $\leq$ 30 m/min had a completely recrystallized structure. Particles of manganese and zirconium-containing phases were distributed nonuniformly in the pressure molded semifinished products because of their nonuniform distribution in the ingots. The structural changes in ingots caused by the above factors did not have a decisive effect on the structure and mechanical properties of semifinished products. In order to obtain the best semifinished products with noncrystallized structure from Al-Zn-Mg alloys, the pressure molding temperature should not be below 380°C.

3/3

USSR

UDC 669.715:620.183

ZOLOTOREVSKIY, V.S., and TELESHOV, V. V.

"Quantitative Relations Between Mechanical Properties and the Structure of Cast Aluminum Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 187-194

Abstract: Statistical methods of correlation and regression analysis are used to analyze the relations between structural characteristics as well as between chemical properties and individual structural characteristics. The principal structural characteristics examined include: size of grain and dendritic cells of primary solid solution, number, size, shape, and distribution of excess phases, porosity, substructure of primary solid solution, and the density and distribution of dislocations. Binary alloys of aluminum with 2, 4.2, and 6% Cu were studied. The alloys were prepared from 99.99% pure aluminum and 99.95% copper. Mechanical properties were determined from rupture tests and measurements of hardness at room temperature. To obtain the initial structure, ingots 42 mm in diameter and 200 mm long were cast in a steel mold heated up to different temperatures in the 20-700° range. A total of more than 100 specimens of three alloys in different states were studied. The structure and mechanical properties of the specimens cut from each ingot

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USSR

ZOLOTOREVSKIY, V. S., et al, Izvestiya Akademii Nauk SSSR, Metally, No 5, Sep/Oct 71, pp 187-194

were evaluated in the cast state and after homogenization of different duration followed by quenching in water. The structural characteristics strongly affecting mechanical properties of alloys were singled out from those showing a weak effect. It was found that the concentration of the solid solution in a wholly homogenized alloy equal to or close to its average composition determines the general level of strength properties.

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USSR UDC 669.71.018.9

AGEYEVA, G. N., ZOLOTOREVSKIY, V. S., TELESHOV, V. V., TSAREGORODTSEVA, A. I.

"Influence of Homogenization Modes of Ingots on Structure and Properties of Semi-finished Goods of Alloys in the Al-Zn-Mg System with Zn/Mg ≈2"

Metallurgiya [Metallurgy -- Collection of Works], No. 13, Leningrad, Sudostroyeniye Press, 1970, pp. 113-120. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G171 by the authors).

Translation: Combined analysis of the structure and properties of ingots and semifinished goods of an alloy in the Al-Zn-Mg system with ratio of Zn/Mg ≈2 establishes the influence of homogenization modes on the final structure and properties of semifinished goods of this alloy. An accelerated mode of homogenization of ingots of the alloy Al-Zn-Mg with Zn/Mg ≈2 is recommended for industrial testing. 2 figs; 5 tables; 6 biblio refs.

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USSR

UDC 669.715.018.95

BABICHEV, B. I., D'YACHENKO, L. A., ZOLOTOREVSKIY, YU. S., IVANOV, V. V., KUCHKIN, V. V.

"Possibility of Hardening Aluminum Alloys by VT15 Alloy"

V sb. Metallurgiya (Metallurgy -- collection of works), No 14, Sudostroyeniye Press, Leningrad, 1971, pp 128-132 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4I647)

Translation: A study was made of the possibilities of creating layered composite materials by reinforcing Al-alloys with high-strength materials. As an example a composite is presented in which the role of the hardening agent is played by VT15 alloy. The theoretical technological scheme and the heat treatment conditions for this composite material were selected so as to insure a strength >70 kg/mm^2 with a specific weight of 3.32 g/cm^3. The study of the physical and mechanical properties of this composite makes it possible to draw conclusions regarding its promising nature. 3 illustrations, 1 table, and a 6-entry bibliography.

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USSR

BABICHEV, B. I., ZOLOTOREVSKIY, YU. S., ZORINA, A. YA., IVANOV, V. V.

"Properties of An Aluminum Alloy Strengthened With Fiberglass"

V sb. Metallurgiya (Metallurgy -- collection of works), No 14, Sudostroyeniye Press, Leningrad, 1971, pp 133-137 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4I648)

Translation: A study was made of the properties of an aluminum alloy strengthened with fiberglass. It is demonstrated that the theoretical data on the strength of a two-layer composite agree with the actual data. The variation in temperature from +142 to -180°, cyclic loading, and corrosive environment have no effect on the mechanical properties of the two-layer composite. 1 illustration, 2 tables, and a 3-entry bibliography.

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USSR

UDC 669.71.018.9.4

GONCHAROVA, L. A., ZOLOTOREVSKIY, YU. S., RUDOMETOV, V. S., SEREBRIYSKIY, E. I.

"Experiment in Refining Aluminum Alloys"

V sb. Metallurgiya (Metallurgy -- collection of works), No 14, Leningrad, Sudostroyeniye Press, 1971, pp 35-42 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G197)

Translation: Laboratory experiments in refining the Al-alloys of the Al-Zn-Mg system by argon scavenging and also powdered hexachloroethane suspended in the Ar are described. The blowing parameters were investigated using an aqueous model. Results are presented from studying the contamination of the metal and determining its physical-mechanical and corrosion characteristics.
5 illustrations, 2 tables and a 9-entry bibliography.

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USSR

UDC 669.715:539.4.016.3

AFIZOV, E. A., ZOLOTOREVSKIY, YU. S., KURYASHKIN, L. V., RUDOMETOV, V. S.

"Some Problems of Applying Technological Heating when Manufacturing Structural Elements from High-Strength Aluminum Alloys"

V sb. Metallovedeniye (Physical Metallurgy -- collection of works), No 15, Leningrad, Sudostroyeniye Press, 1971, pp 137-148 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I646)

Translation: Experimental data are presented which characterize the effect of the temperature and duration of heating on the strength and plastic properties of the metal of structural elements made of Al-alloys. It is demonstrated that the application of technological heating can promote a significant increase in the operating qualities of the structural elements. When designing structural elements and developing the process of manufacturing them it is necessary to increase the possible variation of the mechanical properties of the alloys as a result of heating. 4 illustrations, 1 table, and a 12-entry bibliography.

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USSR

UDC 669.71.018.9

ZOLOTOREVSKIY, Yu. S., RUDOMETOV, V. S., SEREBRIYSKIY, E. I., SINYAVINA, N. P., TSAREGORODTSEVA, A. I.

"Study of the Relationship Between Structure of Ingots and Properties of Pressed Semifinished Goods of an Alloy in the System Al-Zn-Mg with $Zn/Mg \approx 0.5$"

Metallurgiya [Metallurgy -- Collection of Works], No. 13, Leningrad, Sudostroyeniye Press, 1970, pp. 121-127. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G172 by the authors).

Translation: The influence of crystallization rates on the microstructure of an alloy in the system Al-Zn-Mg is demonstrated. The inherited nature of structural elements of the ingot is established. 3 figs; 4 tables; 7 biblio refs.

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Mechanical Properties

USSR

UDC 669.715.5.721.018.29.669.018.2

BABICHEV, B. I., ZOLOTOREVSKIY, Yu. S., NEZHNIKOVSKIY, I. A., RAYAZHSKAYA, T. K.

"The Problem of the Inertia of Natural Aging of Alloys in System Al-Zn-Mg With Mg/Zn 2 and Its Influence on Mechanical Properties"

Metallovedeniye[Metal Science -- Collection of Works], No. 14, Leningrad, Sudostroyeniye Press, 1970, pp. 160-165. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I678 by the authors).

Translation: The kinetics of the decomposition of the solid solution of an alloy in the system Al-Zn-Mg and the mechanical properties produced are studied. 2 figs; 2 tables, 12 biblio refs.

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USSR

UDC 669.715.5.721.018.29.621.785

DANCHENKO, V. G., ZOLOTOREVSKIY, Yu. S.

"Study of Kinetics of Decomposition of Solid Solutions with Hot Working of Ingots of Alloys in the System Al-Zn-Mg and Its Influence on the Properties of Deformed Semifinished Goods"

Metallovedeniye[Metal Science -- Collection of Works], No. 14, Leningrad, Sudostroyeniye Press, 1970, pp 151-159. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I676 by the authors).

Translation: The influence of the addition of the transition elements Mn, Cr, and Zr on the kinetics of decomposition of solid solutions in ingots of alloys in the system Al-Zn-Mg and the dependence of the effect of structural hardening in deformed semifinished goods on the degree and nature of decomposition of the solid solution in the ingots are studied. Decomposition of the solid solution during various stages of hot working of an ingot was studied by means of metallographic analysis and measurement of the electrical resistivity. In order to determine the phase composition of dispersed segregations, electron microscope analysis was employed. The limiting permissible contents of Cr and Zr are determined. 6 figs, 2 tables, 14 biblio refs.

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USSR

UDC 669.715.5.721.018.29.620.193

BABICHEV, B. I., ZOLOTOREVSKIY, Yu. S., KLEPTSOVA, I. S., NEZHNIKOVSKIY, I. A., RYAZHSKAYA, E. K.

"Properties of Alloys in the System Al-Zn-Mg as Functions of Artificial Aging Mode"

Metallovedeniye [Metal Science -- Collection of Works], No. 14, Leningrad, Sudostroyeniye Press, 1970, pp. 145-150. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I677 by the authors).

Translation: The properties of alloys in the system Al-Zn-Mg are studied with various aging modes. It is demonstrated that the alloy has satisfactory corrosion resistance with long storage following hardening with subsequent 2-stage aging (temperature of stage II 140°). 4 figs; 3 tables; 3 biblio refs.

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AP0011660 CHEMICAL ABST. 12/69 HR 2951

127959r Effect of zinc content and some technological factors on the properties of aluminum-zinc-magnesium system alloy sheets. Babichev, B. I.; Danchenko, V. G.; Zolotorevskii, Yu. S.; Kvadskaya, T. K.; Polina, E. M. (USSR). *Tsvetn. Splavy* 1969, No. 6, 34-8 (Russ). The 10 mm. thick sheets of alloys contg. ~4 and ~5% Zn were quenched at 475 and 500° and then 2-stage artificially aged at 80–200°. The mech. properties under stress conditions were investigated on smooth as well as on notched specimens of 5 mm. diam. The stress corrosion resistance was investigated at stress 0.75 $\sigma_{0.2}$ in the 3% NaCl + 0.1% H_2O_2 soln. Moreover, the susceptibility of 4 × 700 × 1000 mm. specimens to crack development were investigated at static cyclic tension at 100 cycles/min. A decrease of Zn content caused a decrease of the susceptibility of the alloy to notch effect, stress corrosion, and crack development. The best results were obtained after quenching the 4% Zn alloy from 475° but increase of this temp. to 500° increased the susceptibility to notch effect. The optimal homogenization temp. is 460-80°, and its increase to 500° intensifies decompn. of the solid soln. and coagulation of the decompn. products in the material.

J. Pietkiewicz

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19570321 mac

1/2 011 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--PRESSMOULD FOR PLASTICS BUOYS -U-

AUTHOR--ZOLOTOREVSKIY, YA.YU.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 243818

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 17

DATE PUBLISHED--19SEP69

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PATENT, BUOY, NONMETAL PRESS, PLASTIC INJECTION MOLDING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/0272 STEP NO--UR/0482/69/000/000/0000/0000

CIRC ACCESSION NO--AA0110181

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AA0110181

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRESSMOULD FOR PLASTICS BUOYS HAS ITS PLUNGER FIXED ON A HORIZONTAL MOVING PLATEN, WHILST THE PRINT AS BUSH HAS A VERTICAL WEB (5) AND A SPRUNG NONRETURN VALVE (6). THUS THE TOP HALF OF THE BUOY CAN BE SHAPED, AND THE PLUNGER USED TOGETHER WITH ANOTHER DIE AND THUS EXPAND THE RANGE OF SIZES. ROLLED, HEATED STRIP IS PLACED IN THE MOULD AND THE PLATEN LOWERED. THIS FORMS HALF THE BUOY. THE MOULD IS THEN OPENED AND THE PROJECTION ON THE PLATEN ENGAGES THE DRIVE AND THIS MOVES THE PLATEN AND PLUNGER UNTIL THE TOP HALF OF THE BUOY REGISTERS WITH THE BOTTOM HALF OF THE BUOY IN ANOTHER MOULD DIE. THE PLATEN IS THEN LOWERED AND THE MOULD, NOW FORMED FROM SEPARATE TOP AND BOTTOM HALVES, IS LOCKED FOR THE SECOND STAGE OF FORMING. THE TWO HALVES WELD TOGETHER DUE TO THEIR BEING HEATED. COMPRESSED AIR IS INJECTED THROUGH THE PRINT (4) FOR RAPID COOLING. THE AIR TRAVELS THE CHANNEL (8) AND RUPTURES THE VALVE. PLATE (7) PROJECTS THE CHANNEL (9) AGAINST THE AIR. AFTER REQUIRED RESIDENCE TIME, THE PRINT IS KNOCKED OUT FROM THE TOP AND THICKENED PART FROM THE BOTTOM MOULD. THE MOULD IS THEN OPENED AND THE COMPLETE BUOY REMOVED.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--WELDING WIRE FOR WELDING BRONZE -U-

AUTHOR-(05)-MINCHINA, A.N., VAYNERMAN, A.YE., ZOLOTOREVSKIY, YU.S., MAKAROV, A.G., MALMSTREM, A.I.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,604
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--BRONZE, WELDING ELECTRODE, COPPER ALLOY, ALUMINUM CONTAINING ALLOY, TITANIUM CONTAINING ALLOY, NICKEL CONTAINING ALLOY, IRON CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, ALLOY COMPOSITION, METALLURGIC PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1786 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109747
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AA0109747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A WELDING WIRE HAS THE FOLLOWING PERCENT COMPN.: TI 0.2-0.4, NI 5-6.5, AL 1.5-2.5, FE 0.8-1.3, MN 2.5-3.5, AND CU THE REMAINDER.

UNCLASSIFIED

USSR

UDC 537.226.33

BURDANINA, N. A., ZOLOTOTRUBOV, YU. S., KAMYSHEVA, L. N., ZHUKOV, O. K., and KOVALENKO, A. N., Voronezh State University imeni Leninskiy Komsomol

"Dielectric Losses in Triglycinesulfate Crystals Subjected to Various Effects"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1943-1946

Abstract: The influence of gamma and x-radiation has been studied previously as it concerns the ferroelectric properties of a triglycine sulfate crystal (TGS). Since the parameter most sensitive to radiation is the tangent of the angle of dielectric losses tan δ, it can be expected that even small radiation doses will significantly change both the value of tan δ and the function tan δ (T) for the TGS. In this work the authors study the effect of the amplitude of the measuring field on these same functions. They first study the influence of annealing on the dielectric properties and find that orientation polarization makes a significant contribution to the dielectric permeability of the TGS as a result of heat annealing. The next section is devoted to the influence of the amplitude of the measuring field on samples having different thickness, which is probably determined by the characteristics of the domain structure. Preliminary investigations confirm that the degree of

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USSR

BURDANINA, N. A., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1943-1946

unipolarity in the samples increases as their thickness decreases. The authors then look at the influence of irradiation on the dielectric properties and find that there is a decrease in the dielectric losses in the TGS crystal irradiated with comparatively small radiation doses. The article contains 4 illustrations and 9 bibliographic entries.

2/2

Acc. Nr.: AM0104087 Ref. Code: UR0000

Kuznetsov, A. A.; Alifanov, O. M.; Vetrov, V. I.; Zolotov, A. A.; Titov, M. I.

Probability Characteristics of Strength of Aircraft Materials and Dimensions of an Assortment (Veroyatnostnyye kharakteristiki prochnosti aviatsionnykh materialov i razmerov sortamenta) Manual.Moscow, Mashinostroyeniye, 1970, 565 pp (SL:2007)

TABLE OF CONTENTS:

...The manual contains tables of mathematical expectations, mean square deviations of the tensile strength and yield point, relative elongation and probability characteristics of sheet thickness, cross-section areas of shapes and thickness of tubes from nonferrous alloys and steels.

The book was written for designers and calculators employed by the aircraft industry and other machine-constructing branches.

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Reel/Frame 19870480

18 K Z

USSR

UDC 8.74

MEDVED'KO, V. N., ZOLOTOV, A. B.

"Obtaining the Analytical Solution of Ordinary Differential Equations with Constant Coefficients on a Computer"

Tr. TsNII stroit. konstruktsiy (Works of the All-Union Scientific Research Institute of Construction Parts), 1971, vyp. 20, pp 11-17 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V633)

Translation: The existing and proposed procedures for solving a system of ordinary differential equations with constant coefficients are described. The difference of the latter consists in using it to obtain the solution in purely analytical form. This permits a higher-quality analysis of the problems to be performed. It is noted that the proposed procedure has been checked when solving the practical problems of calculating structural elements.

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UDC 546.185

USSR

ZHAUROVA, I. N., KUKHAR', V. P., TUKHAR', A. A., ZOLOTAREVA, L. A.

"Mutual Effect of Substitutions in Triphenylphosphazo Benzenes"

Leningrad, Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 82-86

Abstract: A study was made of the mutual effect of substitutions in triphenylphosphazo benzenes. The basicity constant of the triphenylphosphazo benzenes $(C_6H_5)_3P = NC_6H_4X$ and analines $XC_6H_4NH_2$ are correlated identically satisfactorily with σ^0, σ and σ^- by the constants of the substitutions X. In contrast to the diethylamino and the amino groups, the triphenylphosphato group has a positive induction effect. The following tales of values are presented: 1) the parameters of the correlation equations pK_a -- the constants σ^0, σ and σ^- for triphenylphosphazo benzenes $(C_6H_5)_3P = NC_6H_4X$ calculated by the data of V. P. Kukhar', et al., ZhOKh, No 40, 1696, 1970, the more exactly defined parameters of the correlation equations pK_a -- constants σ^0, σ and σ^-, the parameters of the correlation

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USSR

ZHMUROVA, I. N., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1, 1973, pp 82-86

equations pK_a -- constants σ^0, σ and σ^- for triphenylphosphazo benzyli-denanilines n, n'-$(C_6H_5)_3P = NC_6H_4CH = NC_6H_4X$ in nitromethane, the parameters of the correlation equations pK_a -- constants σ^0, σ and σ^- for analines $NH_2C_6H_4X$, the reaction constants of the triphenylphosphazo group in alcohol and nitromethane by the equations of M. I. Kabatschnik [Phosphorus, No 1, 117, 1971], the Hammett constants and the components σ_n of the constants of the groups $(C_6H_5)_3P=N-$, $(CH_3)_2N-$, the basicity constants of the triphenyl-phosphazo-n-binyl benzenes $(C_6H_5)_3P=NC_6H_4CH=CXY$ in nitromethane (95% alcohol) and σ_n^0 substitution constants in nitromethane (95% alcohol) calculated by pK_a of triphenylphosphazo benzenes $(C_6H_5)_3P=NC_6H_4X$.

2/2

Luminescence

USSR

UDC 543.70

ANIKINA, L. I., BAGREYEV, V. V., DOBROLYUBSKAYA, T. S., ZOLOTOV, Yu. A., KARYAKIN, A. V., MIKLISHANSKIY, A. Z., NIKITINA, N. G., PRIEV, P. N., YAKOVLEV, Yu. V.

"Luminescent Determination of Gadolinium, Europium and Samarium as Impurities in Metallic Uranium"

Moscow, Zhurnal Analiticheskoy Khimii, Vol XX, No 7, pp 1014-1018

Abstract: A quantitative luminescent method of analyzing gadolinium, europium and samarium impurities in metallic uranium is described. A large part of the uranium was separated by a chromatographic method, passing uranyl sulfate in 1 N H_2SO_4 through a column with KaU-2 cation-exchanger. The rare-earth element impurities remaining in the column were was ed out by 4-5 N HCl. It was established photometrically with the application of arsenazo III that an unacceptable high amount of uranium (~ 0.04 percent from a weighed sample of 10 grams of uranyl sulfate) was washed into the eluate, making necessary the development of additional methods for separation and determination of the rare-earth elements. Luminescent methods were then used. Gadolinium, europium and samarium in metallic uranium were analyzed by the radiation spectra of luminophors based on Y_2O_3 for gadolinium and YVO_4 for europium and samarium. The rare-earth elements were concentrated chromotographically, and the luminescence was spark-excited. A phosphoroscope was used to measure the spectra. The sensitivity of analyzing

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ANIKINA, L. I., et al., Zhurnal Analiticheskoy Khimii, Vol XX, No 7, pp 1014-1018

gadolinium, europium and samarium was $2 \cdot 10^{-6}$ percent, and the variation factor was 30 percent. The method permits quantitative determination of the indicated rare-earth elements from a weighed sample of up to 1 gram of uranium. As a control, the additive method was used. Gadolinium, europium and samarium were introduced in the amounts of $2 \cdot 10^{-5}$ and $5 \cdot 10^{-5}$ percent after decomposition of the metal uranium by nitric acid. An analysis flow chart and sample luminescence spectra are given in the article.

2/2

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--SOLVENT EXTRACTION OF COPPER(II) AND NICKEL(II) AS THEIR CHELATE COMPOUNDS WITH 1,PHENYL,3,METHYL,4,BENZOYL,5,PYRAZOLONE -U-

AUTHOR-(02)-ZOLOTOV, YU.A., SIZONENKO, N.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(1), 54-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLVENT EXTRACTION, COPPER, COMPLEX COMPOUND, NICKEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/0075/70/025/001/0054/0058

PROXY REEL/FRAME--1996/1899

CIRC ACCESSION NO--AP0118861 UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 011
CIRC ACCESSION NO--AP0118861
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXTN. OF CU AND NI COMPLEXES WITH 1,PHENYL,3,METHYL,4,BENZOYL,5,PYRAZOLONE (I) WAS STUDIED. OPTIMUM ABSORPTIONS ARE OBTAINED FOR COMPLEXES WHERE THE M:I RATIO IS 1:2 (M EQUALS CU AND NI), THUS THE CHELATES ARE EXTD. AS MI SUB2. THE EXTN. COSTS. OF THE COMPLEXES IN ISAMYL ACL. AND THE 2 PHASE STABILITY CONSISTS. WERE DETD.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SYNERGISTIC EFFECTS IN THE SOLVENT EXTRACTION OF CHELATE COMPOUNDS. INFLUENCE OF THE DONOR ATOMS OF THE REAGENT -U-

AUTHOR-(03)-ZOLOTOV, YU.A., PETRUKHIN, O.M., GAVRILOVA, L.G.

COUNTRY OF INFO--USSR

SOURCE--J. INORG. NUCL. CHEM. 1970, 32(5), 1679-88

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLVENT EXTRACTION, ZINC, CHELATE COMPOUND, ORGANIC PHOSPHATE, KETONE, MERCAPTAN, QUINOLINE, CARBAMATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2126 STEP NO--UK/0000/70/032/005/1679/1688

CIRC ACCESSION NO--AP0125710
UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 012
CIRC ACCESSION NO--AP0125710
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLVENT EXTN. OF ZN WAS INVESTIGATED IN THE FORM OF CHELATE COMPDS. WITH 2,THENOYLTRIFLUOROACETONE, 1,PHENYL,3,METHYL,4,BENZOYL,5,PYRAZOLONE, 1,5,DIPHENYLCARBAZONE, 8,MERCAPTOQUINOLINE 1,5,DIPHENYLTHIOCARBAZONE (DITHIZONE), AND DIETHYLDITHIOCARBAMATE. BENZENE WAS USED AS DILUENT. EXTN. OF THE ABOVE COMPDS. IN THE PRESENCE OF BU SUB3 PO SUB4 WAS ALSO STUDIED. A SYNERGISTIC EFFECT WAS OBSERVED FOR THE EXTN. OF COMPLEXES OF THE 1ST 3 REAGENTS, ITS MAGNITUDE DECREASING IN THE INDICATED SEQUENCE. WHEN USING S CONTG. REAGENTS, THE EFFECT WAS COMPLETELY ABSENT. THIS MAY BE ACCOUNTED FOR BY THE DIFFERENCE IN THE ZN COORDINATION NO. IN THESE CHELATES. IT IS ASSUMED THAT THE COORDINATION NO. OF THE METAL ION IN CHELATES STUDIES IN THE LOWER, THE STRONGER THE METAL REAGENT BOND.
FACILITY: VERNADSKII INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--STRUCTURE OF EXTRACTABLE MIXED CHELATE COMPOUNDS STUDIED BY AN INFRARED SPECTROSCOPIC METHOD -U-

AUTHOR-(03)-NOSKOVA, M.P., ZOLOTOV, YU.A., GRIBOV, L.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 220-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHELATE COMPOUND, IR SPECTRUM, ZINC COMPLEX, COPPER COMPLEX, COBALT COMPLEX, FLUORINATED ORGANIC COMPOUND, ACETONE, PYRAZOLE, KETONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0002 STEP NO--UR/0075/70/025/002/0220/0225

CIRC ACCESSION NO--AP0132302
UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0132302
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEXES FORMED DURING THE EXTN. OF ZN, CU, AND CO WITH 2 THENOYLTRIFLUOROACETONE AND 1 PHENYL 3 METHYL 4 BENZOYL 5 PYRAZOLONE 5 IN THE PRESENCE AND ABSENCE OF TRI N OCTYLPHOSPHINE OXIDE WERE STUDIED BY IR SPECTROSCOPIC METHODS. THE STRUCTURES OF THE COMPLEXES WERE EXAMD. IN CONNECTION WITH THE SYNERGISTIC EFFECTS OBSD. DURING THE EXTN. OF METALS BY THE ABOVE REAGENT MIXTS. FACILITY: INST. GEOCHEM. ANAL. CHEM., MOSCOW, USSR.

UNCLASSIFIED

ZOLOTOV, YURIY ALEKSANDROVICH

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1/2 019 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--DETERMINATION OF TRACES OF METALLIC IRON IN IRON OXIDE, FERRO SILICON, AND SILICIDE BASE ALLOYS -U-

AUTHOR-(02)-TUMANOV, A.A., ZOLOTOVA, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 276-77

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--CHEMICAL ANALYSIS, IRON, OXIDATION, CHEMICAL PRECIPITATION, SILICON BASE ALLOY, ELECTRONIC EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0944 STEP NO--UR/0032/70/036/003/0276/0277

CIRC ACCESSION NO--AP0131529

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

2/2 019

CIRC ACCESSION NO--AP0131529

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF DETERMINING TRACES (10 PRIME NEGATIVE2 TO 10 PRIME NEGATIVE3 PERCENT) OF METALLIC FE IN MATERIALS COMMONLY USED FOR RESISTORS IN ELECTRONIC APPARATUS IS DESCRIBED. THE METHOD IS BASED ON THE SELECTIVE DISSOLUTION OF FE IN METHYL ALCOHOL CONTG. A SUITABLE SALICYLATE. THE SENSITIVITY IF 1 MU G OF FE IN A FINAL VOLUME OF 25 ML. THE AVERAGE ERROR IS 10-25PERCENT, THIS ARISING PARTLY FROM WEIGHING DIFFICULTIES AND PARTLY FROM THE OXIDATION OF THE METALLIC FE IN THE COURSE OF PREPARATION.

UNCLASSIFIED

USSR

UDC 547.26'118

ZOLOTOVA, M. V., KONSTANTINOVA, T. V.

"Reaction of Complete Phosphites With Substituted Carboxylic Acyl Chlorides"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 9, Sep 70, p 2131

Abstract: Complete phosphites react with alkoxy- or thioalkoxy-carboxylic acyl chlorides by the Arbuzov type rearrangement, giving esters of alkoxy or thioalkoxyacylphosphonic acids: $RCH_2COCl + (C_2H_5O)_3 \rightarrow RCH_2COP(O)(OC_2H_5)_2$ when R = $-C_2H_5$ -- b.p. 102-104/10 mm, d_4^{20} 1.0966, n_D^{20} 1.4158; R = $-SC_2H_5$ -- b.p. 94/3 mm, d_4^{20} 1.0960, n_D^{20} 1.4462; R = $-SC_4H_9$ -- b.p. 100/3 mm, d_4^{20} 1.0700, n_D^{20} 1.4431.

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USSR UDC 595.775

ZOLOTOVA, S. I., and AFANASYEVA, O. V., Central Asian Scientific Research Antiplague Institute, Alma-Ata

"Biology of the Gerbil Flea Ctenophthalmus dolichus Ioff, 1953"

Leningrad, Parazitologiya, Vol 5, Vyp No 4, Jul/Aug 71, pp 364-368

Abstract: The effect of relative humidity and temperature on the development of Ctenophthalmus dolichus was studied. This flea infests the great gerbil during the cold season. It was found that the entire life cycle of the flea takes place at a temperature from 8 to 26°C and relative humidity from 89 to 100%. The optimum conditions for development were found to be a temperature of 25-26°C and relative humidity of 95 to 100%, conditions at which 19.2 to 36.7% of the eggs hatched. The relatively small number of individuals completing the life cycle indicates that this flea species is of low viability. The temperature has a pronounced effect on the development of the pre-imaginal phases. The development period of the fleas is reduced from 338 to 22 days as the environmental temperature increases from 8 to 26°C.

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UDC 62-50

METHOD OF OPTIMAL REGENERATION OF SIGNALS OF SEVERAL INSTRUMENTS

[Article by T. M. Zolotova, Institute of Electronic Control Machines; Moscow, Doklady Akademii Nauk SSSR, Russian, Vol 198, No 1, 1971, submitted 9 September 1970, pp 58-61]

One of the most commonly used methods of improving the precision and reliability of analog information systems is the use of systems with several instruments connected in parallel. This involves the problem of finding the noninertial regeneration of output signals of parallel-connected instruments that ensures maximum system precision for a given reliability [1, 2]. Set forth in this article is a method for solving this problem, based on the utilization of a restoration device that performs some function of ordered sampling [3].

Let there exist n variables $x_1, x_2, \ldots, x_n$, to each of which corresponds the weight coefficient $a_1, a_2, \ldots, a_n$; $a_i > 0$, $i = 1, 2, \ldots, n$. We will arrange the values of the variables at arbitrary moment of time t in the order of nondiminution: $x_{i_1} \geq x_{i_2} \geq \ldots \geq x_{i_n}$. Then the function of ordered sampling can be written in the form[1]

$$F_n^m(\delta, a, x) = \left(\sum_{i=p}^{r} a_{i_k} z_{i_k}\right) \Big/ \left(\sum_{i=p}^{r} a_{i_k}\right), \quad p \leq r, \tag{1}$$

where

$$\sum_{i=1}^{l'} a_i < m \leq \sum_{i=1}^{l} a_i, \quad z_{i_k} - z_{i_p} \leq 2\delta, \tag{2}$$

[1]Our definition of the function of ordered sampling generalizes the one given in [3].

1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--INTERACTION OF MANGANESE(II) IONS WITH VANADIUM(V) IN AQUEOUS SOLUTIONS IN THE PRESENCE OF VARYING CONCENTRATIONS OF H PRIME POSITIVE

AUTHOR-(03)-ZOLOTAVIN, V.L., BULYGINA, V.N., BEZRUKOV, I.YA.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2) 429-34

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SOLUTION CONCENTRATION, HYDROGEN ION CONCENTRATION, AQUEOUS SOLUTION, MANGANESE COMPOUND, HYDROXIDE, VANADATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/0908 STEP NO--UR/0078/70/015/002/0429/0434

CIRC ACCESSION NO--AP0053832

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0053832
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTION OF MN(II) WITH V(V) IN AQ. SOLN. WAS STUDIED AT PH 2-12 AT VARIOUS INITIAL CONCNS. OF THE IONS. MN(VO SUB3) SUB2.4H SUB2 O (I), MN(OH)VO SUB3. 2H SUB2 O, (MNOH) SUB4 V SUB2 O SUB7.4H SUB2 O, AND (MNOH) SUB3 VO SUB4.3H SUB2 O SEP. AT WEAKLY ACIDIC AND BASIC PH. EFFECT OF IONIC STRENGTH ON THE SOLY. OF I IS TABULATED.

UNCLASSIFIED

USSR UDC 615.919.591.145.2.615.918:58.615.9:576.8.097.29

POBEREZHSKAYA, T. I., KIREYEVA, V. F., and ZOLOTOVITSKAYA, L. A.

"Effect of Bee Venom on the Bile Formation in Dogs"

Uch. zap. Gor'kov. un-t. Ser. biol. (Educational Proceedings of the Gor'kov University, Biological Series), Vyp 40, 1972, pp 9-13 (from Referativnyy Zhurnal -- Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 1, 1973, Abstract No 1.54.787 by V. K.)

Translation: Dogs which had been given 1 mg/kg of native bee venom (BV) tended to decrease bile production during the first day after the injection of BV then to double its secretion during the second and third days, then gradually to return to normal. The amount of cholesterol separated with the bile in the three-hour experiment on the day of the BV injection practically did not change. By the third day it had increased three-fold and was normal by the sixth to the eighth day. The amount of hematoidin separated with the bile increased during the second or third day and returned to normal on the sixth to the eighth day.

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UDC 541.14:541.13

USSR

KORSHUNOV, L. I., ZOLOTOVITSKIY, YA. M., and BENDERSKIY, V. A., Institute of Chemical Physics, USSR Academy of Sciences, Moscow

"Photoelectric Effect at a Metal-Electrolyte Interface"

Moscow, Uspekhi Khimii, Vol XL, 1971, pp 1511-1535

Abstract: Recent studies in England and the USSR have made it possible to distinguish elementary events underlying the electrode photoeffect, which is a phenomenon of great theoretical and practical interest. The present survey is aimed at elucidating the elementary processes involved in photo-transfer of a charge through the metal-electrolyte interface (1) in solutions not absorbing light in the part of the spectrum used for excitation of the electrode, and (2) in solutions of photochemically active redox systems, when light is absorbed by the dye solution. Various solutions (K_2SO_4, KCl, $NaNO_3$, etc.) are studied photochemically. Complete graphical data illustrating the course of the experiments accompany the paper.

1/1

USSR

UDC: 621.315.592

ZOLOTUKHIN, A. A., MILEVSKIY, L. S., SMOL'SKIY, I. L., and SIDOROV, Yu. A.

"Effect of Iron Atoms on the Electrical Characteristics of Plastic Silicon Deformation"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1961-1965

Abstract: Experiments are described for the detection of effects connected with impure atmospheres by generating supersaturation in silicon crystals with various contents of oxygen with iron impurities. The reason for this is that extreme dislocations in germanium can only be obtained for a short time after low-temperature thermal shock without such atmospheres. This investigation was conducted by analyzing the temperature dependence of the Hall effect. The specimens used were monocrystals of n and p type silicon with minimum resistivities of 20 ohm.cm, and alloyed with phosphorus or boron. They were cut in the form of bars measuring 3X3X18 mm and were deformed, before cooling, in an argon atmosphere at 650° C under constant compression stress along the /123/ direction. Further data on the preparation of the specimens is

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USSR

UDC: 621.315.592

ZOLOTUKHIN, A. A., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1961-1965

given along with curves for carrier concentrations as functions of the temperature and for the Hall mobility in silicon as a function of the temperature.

1/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--OPTICAL FOURIER SYNTHESIS -U-

AUTHOR-(02)-ZOLOTUKHIN, A.A., KARDONSKIY, V.M.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 160-1

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--X RAY DIFFRACTION, CRYSTAL STRUCTURE, OPTIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0918 STEP NO--UR/0070/70/015/001/0160/0161

CIRC ACCESSION NO--AP0116428

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0116428

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXPT. DEMONSTRATING THE POSSIBILITY OF OPTICAL FOURIER SYNTHESIS OF CRYSTAL STRUCTURES IS DESCRIBED. MARCASITE, FES SUB2, WAS CHOSEN AS AN EXAMPLE. PERFORATED OPAQUE SCREENS WERE USED TO SIMULATE X RAY DIFFRACTION PATTERNS OF MARCASITE, THE CIRCULAR ORIFICES BEING PLACED AT POSITIONS CORRESPONDING TO THE HKOO POINTS IN THE RECIPROCAL LATTICE OF MARCASITE AND HAVING AREAS PROPORTIONAL TO THE CORRESPONDING STRUCTURAL AMPLITUDES.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SOME QUESTIONS OF THE PSYCHOPHYSIOLOGICAL SELECTION OF MILITARY SPECIALISTS -U-

AUTHOR-(02)-KURPITA, P.N., ZOLOTUKHIN, A.N.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, NO 3, 1970, PP 55-57

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--PSYCHOPHYSIOLOGY, PERSONNEL SELECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0395 STEP NO--UR/0177/70/000/003/0055/0057

CIRC ACCESSION NO--AP0135874

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135874

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CREATING A SYSTEM OF PSYCHOPHYSIOLOGICAL SELECTION SOVIET PSYCHOPHYSIOLOGISTS AND PSYCHOLOGISTS START FROM THE POSITION THAT THE FORMATION OF THE PERSONALITY OF A SPECIALIST AND HIS OCCUPATIONAL ABILITIES STARTS FROM THE SOCIAL ENVIRONMENT, HIS IDEOLOGICAL AND POLITICAL AND MORAL MAKE UP, HIS INDIVIDUAL PSYCHIC AND PHYSIOLOGICAL QUALITIES, LEVEL OF GENERAL DEVELOPMENT AND SPECIAL TRAINING.

UNCLASSIFIED

USSR

POSTNIKOV, V. S., MILOSHENKO, V. YE., ZOLOTUKHIN, I. V., SHUMIN, G. YE., and SHUKHALOV, YE. I., Voronezh Polytechnic Institute

"Effect of Imperfections on Internal Friction of Superconductors During n-s Transition"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 11, Nov 72, pp 3447-3448

Abstract: The article reports on further studies of the low-frequency internal friction of superconductors by the method of flexural vibrations. Previous articles by the authors reported that the internal friction peak Q^{-1} is detected during the n-s transition and its value does not vary appreciably with a change in the number of impurities in polycrystalline niobium. The present article studies the effect of extended structural imperfections on this peak in polycrystalline and single-crystal specimens of niobium. The Q^{-1} peak of a 99.8 percent deformed polycrystalline specimen has a width that considerably exceeds the width of the peak in a single crystal with a deformation of several percent. No peak is observed experimentally in a single-crystal specimen annealed at 950° C for an hour. No Q^{-1} peak is observed in

USSR

POSTNIKOV, V. S., et al., Fizika Tverdogo Tela, Vol 14, No 11, Nov 72, pp 3447-3448

perfect single crystals, but it is observed in polycrystalline specimens (deformed and annealed) and single crystals with slight deformation, reaching a width of several tenths of a degree. Conclusion: Extended structural imperfections are responsible for such a substantial expansion of the temperature range; theoretical works have failed to consider the effect of these on the character of fluctuations.

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USSR

UDC 539.4

ZOLOTUKHIN, I. V., AKININ, K. G., ABRAMOV, V. V., KETUSOV, Yu. K., SKOROBOGATOV, V. S., and SVEDOMTSEV, N. V. (Voronezh)

"Investigation of the Damping and Elastic Characteristic of Plasma Coatings of Tungsten, Nichrome, Zirconium Dioxide, and Chrome-Nickel Spinel"

Kiev, Problemy Prochnosti, No 9, Sep; 73, pp 86-89

Abstract: Consideration is given to problems connected with study of the damping and elastic characteristics of thin plasma coatings. The influence of the conditions of application and annealing of the coatings upon the value of oscillation attenuation and the modulus of elasticity. The results of investigation of the modulus of elasticity are presented in a table and in three figures. For tungsten coatings, the modulus of elasticity is characterized by considerable scattering of the values -- from $2 \cdot 10^5$ kg/cm^2 to $14 \cdot 10^5$ kg/cm^2.

The relationship of the modulus of elasticity of the coatings to the temperature, before and after annealing, is shown. Analysis of the E -- t relationships of tungsten and zirconium dioxide coatings shows that in the temperature interval from 20 to 800°C the values of the elasticity modulus E change insignificantly (within the limits of 2-10). For nichrome coatings $E_{1/2}$ decreases more intensively with a temperature rise, and at t = 800°C its

USSR

ZOLOTUKHIN, I. V., et al., Problemy Prochnosti, No 9, Sep 73, pp 86-89

values are on the average 17-23% smaller than at room temperature. 4 figures. 1 table. 14 references.

2/2

USSR UDC 539.4.019.3

POSTNIKOV, V. S., ZOLOTUKHIN, I. V., and NETUSOV, YU. K., Voronezh

"The Damping of Mechanical Oscillations and the ΔE-Effect in Thin Nickel Films"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 72, pp 161-163

Abstract: A study was made of the damping of mechanical oscillations and the change of the modulus of elasticity in nickel films 1000 Å thick. The very high damping was found to depend on large surfaces of the grain boundaries. No change in the damping level in the magnetic field was observed for the films. The ΔE-effect changes by 35%, which exceeds considerably the usually observed values in solid nickel specimens. In solid polycrystal nickel specimens the change in the ΔE-effect by magnetization up to saturation (600 oer) does not exceed 6%, but in thin-layer nickel condensates it changes by 35% even in a field of up to 200 oer. The reason for this abrupt change of the ΔE-effect is not clear. Two illustrations, four bibliographic references.

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UDC 539.67

USSR

POSTNIKOV, V. S., ZOLOTUKHIN, I. V., BURMISTROV, V. N., and SHARSHAKOV, I. M.

"Internal Friction Governed by Relaxation on Twinning Boundaries in Indium + 10% Tallium Alloy"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 152-156

Abstract: It is shown that single crystal samples of In-Tl alloys with a face-centered tetragonal lattice have high damping properties. Single crystals in which the twinning direction is normal to the sample axis have the highest damping value. The observed peaks on internal friction temperature dependence characteristics near the liquid nitrogen temperature are governed by a relaxation along the twinning boundaries. The internal friction peaks at higher temperatures are related to Zener relaxation and diffusion of excessive tallium atoms from packing imperfections into the matrix. The magnitudes of peaks depends substantially on single crystal orientation. 4 figures, 8 references.

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USSR

UDC 539.67

YEVSYUKOV, V. A., ZOLOTUKHIN, I. V., LEBEDINSKIY, V. S., PESIN, M. S., POSTNIKOV, V. S., and SHARSHAKOV, I. M.

"Internal Friction in Phase Transformation in TiNi Intermetallic Compound"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 163-165

Abstract: The nature of the phase transformation in an equiatomic TiNi compound is studied by methods of internal friction, electrical resistance, and dilatometric analysis. The presence of some peaks on the internal friction temperature dependence curve is reported and their features are discussed. The energies of the activation processes are determined. It is assumed that the internal friction peak at 16°C is governed by the duffusion-free phase transformation. Data on internal friction, electrical resistance, and linear characteristics coincide well and confirm the assumed nature of the processes. 3 figures, 6 references.

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Thin Films

USSR UDC 539.67

BELONOGOV, V. K., and ZOLOTUKHIN, I. V.

"Investigation of Internal Friction Amplitude Dependence on Condensed Aluminum, Copper, and Silver Films"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 99-100

Abstract: The internal friction amplitude dependence of poly- and single-crystal aluminum, copper, and silver films 1-3 microns thick, obtained by condensation under vacuum, was investigated. The amplitude-dependent part of internal friction in films is observed at higher deformation amplitudes when compared with that usually observed in a compact material. The higher value of critical deformation amplitude of internal friction is governed by a significant concentration of vacancies in films in which dislocations are locked. 1 figure, 5 references.

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USSR UDC 539.67+621.317.343

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"Device for Measuring the Internal Friction and the Electric Resistance of Thin Foils in the 4.2--300 °K Temperature Interval"

Moscow, Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 218--220

Abstract: A device for measuring the internal friction Q^{-1} and the electric resistance of thin films and foils of 1--200 μ thickness in the temperature interval of 4.2--300 °K is described by reference to the schematic diagram of the cryostat, the gas communication schema, and the block diagram. By the described method, the internal friction can be measured in the range of helium temperatures correct within 0.5% at 4.2 °K and correct within 1% within 300 °K. The electric resistance is measured by the compensation method using the P-306 low-ohmic potentiometer

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MILOSHENKO, V. YE., et al., Pribory i Tekhnika Eksperimenta, No 1, Jan-Feb 72, pp 218-220

and the M21/4 galvanometer. The Q^{-1} temperature dependences of polycrystalline vacuum condensates of a thin copper film and of the internal friction and the electric conductivity of a niobium foil, showing a Q^{-1} maximum at the transition temperature to the superconductivity state, are illustrated. Five illustr., four biblio. refs.

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UDC 539.23

USSR

BELONOGOV, V. K., ZOLOTUKHIN, I. V., IYEVLEV, V. M., and POSTNIKOV, V. S., Voronezh

"Production of Single-Crystal Aluminum Films on Mica"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70, pp 146-147

Abstract: The authors are studying conditions for the production of single-crystal films on mica by condensation in a vacuum of up to $1 \cdot 10^{-5}$ mm Hg. Condensation onto a surface prepared by vacuum cleavage in vapors of the metal permits the production of single-crystal films at a substrate temperature of 450° C and a residual pressure below $5 \cdot 10^{-2}$ mm Hg. The deposition rate is at least 150 Å/sec. The thickness of the studied films is 500-10,000 Å. The present article studies the structure of aluminum films 500-10,000 Å thick, obtained by vacuum condensation onto mica (muscovite), for the purpose of determining factors affecting the growth of single-crystal aluminum films. In order to estimate

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the effect of residual gases on film structure, condensation was carried out in a vacuum of $5 \cdot 10^{-2}$ mm Hg and $1 \cdot 10^{-5}$ mm Hg onto the cleavage surface of mica prepared in air and in vacuum. A comparison of the structure of films obtained at the same substrate temperatures for air and vacuum cleavage indicates that the growth of aluminum films on mica is susceptible to the action of residual gases on the substrate. Vacuum cleavage in the presence of the metal vapors and at high condensation rates reduces their action to a minimum even at a residual pressure of $5 \cdot 10^{-2}$ mm Hg. This makes it possible to obtain single-crystal films under such conditions.

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1/2 050 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--GROWTH OF METALLIC FILMS IN CONDENSATION FROM AN ATOMIC BEAM IRRADIATED WITH ELECTRONS -U-

AUTHOR-(04)-POSTNIKOV, V.S., ZOLOTUKHIN, I.V., MORGUNOV, V.N., YEVLEV, V.M.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF IONIZED METAL ATOMS ON THE EPITAXIAL GROWTH OF FILMS CONDENSED FROM THE GAS PHASE WAS STUDIED BY IRRADIATING EVAPORATED ATOMIC BEAMS OF AU, AG, AND AL FROM THE SIDE WITH AN ELECTRON BEAM, SO AS TO CREATE A PROPORTION OF IONIZED PARTICLES PRIOR TO DEPOSITION. THE ELECTRON IRRADIATION GREATLY PROMOTED THE EPITAXIAL GROWTH OF THE METALLIC FILMS ON ROCK SALT, THE IONIZED PARTICLES HAVING A FAVOURABLE EFFECT ON COALESCENCE AND CONTINUITY.

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USSR

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ENTIN, I. Z., Candidate of Technical Sciences, ZOLOTUKHIN, N. M., Candidate of Technical Sciences

"Optical Modeling of Large Plastic Deformations"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 9-13

Abstract: Models of so-called optically insensitive plastic of the type ONS were used to study the distribution of large plastic deformations in the three-dimensional case. ONS plastic is a modification of plastic obtained with a dibutylphthalate content of 11%. Within the limits of elastic deformations of ONS there is practically no appearance of the double refraction effect and its optical constant is $\sigma_0^{(1)}$ = 5000-10,000 kG/cm^2·cm/band. Beyond the elasticity limit the double refraction effect rises sharply in the glass. ONS admits considerable residual compression deformation at room temperature up to 50-60%. A sample at room temperature that is heated to 100-120° returns to its initial shape and dimensions. At room temperature the residual deformations of ONS are irreversible and the double refraction effect caused by the deformations does not change with time. Such deformations are called isothermally irreversible in the terminology of A. A. Il'yushin. Graphs are given

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ENTIN, I. Z., ZOLOTUKHIN, N. M., Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, No. 12, 1971, pp 9-13

showing the distribution of the components of the deformation under sagging and pulling of a cylinder. Resistance to deformation -- relative deformation under sagging graphs for samples of ONS and castings of steel 5 in the hot state are approximately similar and it is therefore possible to model the distribution of plastic deformations on models of ONS, as the experiments showed. Two identical models which sag in the same manner are used to determine numerical values of the components of the deformations in any diametrical cross section of an axisymmetrical sagged cylinder. Diametrical cross sections are cut out of one model and axial cross sections out of the other. These cross sections intersect in the sample along a radial line and at several points of this line on the diametrical and axial cross sections the optical difference is measured in the half delta and the isocline parameter ϕ for the points of the axial cross section. Graphs are given showing the distribution of the deformation components along the axis of symmetry of a transverse cross section of a cylinder stretched between the plane and cut faces.

Card 2/2

Acc. Nr: AP0046551 Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, 1970, Nr 1, pp 58-63

N. V. ZOLOTUKHIN

CARBONDIOXIDE FIXATION BY A DEVELOPING POPULATION OF HYDROGEN BACTERIA

Institute of Microbiology Academy of Sciences, USSR

A method for evaluating the expenditure and utilization kinetics of carbon dioxide by a growing population of hydrogen bacteria is described.

The results are discussed of the investigation of the process of CO_2 fixation by Hydrogenomonas eutropha in a stationary culture. The method is based on titration with CO_2 of a liquid culture of hydrogen bacteria. It was shown that under experimental conditions practically no lag phase of the CO_2 fixation process and biomass synthesis were observed. The maximal rate of CO_2 utilization by the bacteria equalled 0,32 ml/mg/h and was attained after 10—15 hours following inoculation. At the beginning of the stationary phase this value decreased to 0.013 ml/mg/h. The process of CO_2 fixation by the cells depended exclusively on the oxigen contents in the gasous mixture.

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